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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/705,278

11/10/2003

Hironori Ito

17206

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23389 7590 06/16/2008  
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EXAMINER

CHANG, JULIAN

ART UNIT

PAPER NUMBER

2152

MAIL DATE

DELIVERY MODE

06/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/705,278	<b>Applicant(s)</b> ITO ET AL.	
	<b>Examiner</b> JULIAN CHANG	<b>Art Unit</b> 2152	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/10/03</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This Office action is responsive to communication filed on 11/10/03. Claims 1-19 are pending.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Huang, et al ("SRC: Stable Rate Control for Streaming Media", Feb. 2003), hereinafter "Huang".
3. Huang is an intervening reference. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.
4. Regarding claim 1, Huang teaches an apparatus comprising:

means for obtaining an index representative of a state of a network ('plant consists of send component in the streaming server, the network and the client buffer', § 2.4.1); and

means for controlling a bit rate according to a proportional process and an integral process (Fig. 5 on p. 5) on the difference ('error e', § 2.4.1) between a target value ('reference buffer level  $b_0$ ', § 2.4.1) for said index and an observed value ('feedback value b', § 2.4.1) of said index.

5. Claims 1-7 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Mascolo ("Congestion control in high-speed communication networks using the Smith principle", 1999).

6. Regarding claim 1, Mascolo teaches an apparatus comprising:

means for obtaining an index representative of a state of a network ('source receives the feedback...from the bottleneck', § 3.1, p. 1925); and

means for controlling a bit rate according to a proportional process and an integral process on the difference between a target value for said index and an observed value of said index (Fig. 4, formula (5), both on p. 1926).

7. Regarding claim 2, Mascolo teaches that the index comprises the amount of data buffered in the network ('delayed bottleneck queue level', § 3, p. 1925).

8. Regarding claim 3, Mascolo teaches:

means for calculating a RTT over the network (' $RTT_i = \dots$ ', § 3, p. 1925); and  
means for calculating the amount of data buffered in the network using the RTT ('decreased by the number of cells released by the source during the last round trip time', § 4, p. 1926).

9. Regarding claims 4-7, Mascolo does not explicitly teach the use of serial numbers in the transmission and acknowledgement of data, and calculating the amount of outstanding data in the network based on these serial numbers. Mascolo teaches applying the proposed control law to TCP/IP. (§ 1, p. 1923). TCP/IP inherently employs such serial numbers in the transmission and acknowledgement of packets. Moreover, congestion control in TCP/IP employs these serial numbers to determine the amount of data in the network. This approach is commonly known as the "sliding window".

10. Regarding claims 16-19, Mascolo teaches using, as a target bit rate, the sum of a value proportional to the difference between the target value for the index and the observed value of said index, and a value produced by multiplying an integral of said difference by a constant (formula (5) on p. 1926).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mascolo as applied to claims 1-4 above, and further in view of Rapsomanikis ("RABR: A Service Based on Adaptive Rate Guarantees for Real-Time Video in ABR Networks", 2000).

12. Regarding claims 8-11, Mascolo teaches the invention substantially as claimed and described in claims 1-4 above, but fails to apply the proposed control algorithm to the streaming of real-time video.

Rapsomanikis teaches, in the same field of endeavor, a similar feedback control system for controlling the bit rate of real-time video in ABR networks (abstract).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to employ the technique taught by Mascolo for the transmission of real-time video as suggested by Rapsomanikis in order to avoid congestion in the transmission of real-time video without underutilizing the available bandwidth of the network, and in order to achieve asymptotic stability in the transmission of real-time video.

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13. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mascolo as applied to claims 1-4 above, and further in view of U.S. Pat. No. 6,141,447 ("Linzer").

14. Regarding claims 12-15, Mascolo teaches the invention substantially as claimed and described in claims 1-4 above, including transmitting data at a bit rate determined by a bit rate control process, but fails to teach preparing a plurality of data of audio and video signals encoded at different bit rates and transmitting said data at the determined bit rate.

Linzer teaches that video transcoders are useful for transmitting a video stream using different bitrates based on the congestion of the network. (Col. 1, lines 10-37). Linzer goes on to teach that an alternative to the use of video transcoders is to store multiple copies of the same video at different bit rates. (Id.)

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Pat. No. 6,826,151 – Li, et al.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JULIAN CHANG whose telephone number is (571)272-8631. The examiner can normally be reached on Monday thru Friday 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. C./  
Examiner, Art Unit 2152

/Jeffrey Pwu/  
Supervisory Patent Examiner, Art Unit 2146